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Riparian Mammal Survey Report

Client

Gladman Developments Limited

Project

**Land off Cunnery Close,
Barlestone**

Date

September 2026

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Rev	Issue Status	Prepared/Date	Approved/Date
-	Final	RCO / 22.09.26	LRC / 23.09.26
A	Final	RCO / 07.10.26	RJS / 07.10.26

1.0 NON-TECHNICAL SUMMARY

Report Scope and Methodology
Two water vole and otter surveys were conducted on behalf of Gladman Developments Limited for Land off Cunners Close, Barlestone (Central OS grid reference: SK 42196 05423). The Study Area comprises arable habitat alongside hedgerows, trees and a small area of grassland. Surveys were carried out on an offsite ditch to the south of the site. A late season survey took place on 30th September 2025 with the early season survey completed on 23rd April 2026 undertaken in accordance with The Water Vole Conservation Handbook (3rd ed, 2011), the Water Vole Mitigation Handbook (2016) and the New Rivers and Wildlife Handbook.
Ecological Baseline
No designated sites cited for water vole and otter presence were located within the search area in the desk study. Ditch D1 to the south of the site was considered to be of a suitable but poor example of water vole habitat with low water levels, gentle banks, limited foraging vegetation and dominating scrub coverage. The watercourse was considered to support suitable habitat for holt creation however provided limited foraging opportunities. During surveys no signs of either species were identified.
Assessment of Impacts
Proposals include the loss of all arable areas within the Study Area to facilitate the creation of residential units, roads and associated infrastructure, and areas of greenspace. The inclusion of green infrastructure in the scheme design including grassland, scrub and SuDs creation will provide suitable additional habitats for any water vole or otter populations in the wider area. A sensitive lighting strategy will also be implemented.
Recommended Mitigation, Compensation and Enhancement
Species-rich grasslands proposed along the south of the development bordering the watercourse will provide additional habitat for these species. The attenuation feature should be designed with a varied bed profile to provide suitable conditions for a range of wetland plants to establish. It should also be designed to hold a degree of water throughout the winter, providing opportunities for any local populations to colonise and utilise the Study Area. As otters are known to be in the wider landscape, a best practice mitigation strategy has been recommended as a precautionary approach including the creation of a CEMP and good practice lighting strategy.

2.0 INTRODUCTION

- 2.1 This report has been prepared by FPCR Environment and Design Ltd on behalf of Gladman Developments Ltd. and provides details of riparian mammal surveys undertaken to date at Land off Cunnery Close, Barlestone (Central OS Grid Ref: SK 42196 05423) herein referred to as 'the Site'.
- 2.2 The surveys were commissioned to confirm the presence/likely absence of water vole *Arvicola amphibius* and otter *Lutra lutra* within a watercourse that falls offsite but adjacent to the southern boundary of the Site. The surveys formed part of a wider assessment to consider the potential ecological value of the Site. This report details the results of the surveys undertaken to date with recommendations to ensure that the proposed activities will comply with the relevant legislation and should be read in conjunction with the Ecological Impact Assessment (FPCR, 2026).

Site Location and Context

- 2.3 The Site is 6.53ha in extent and comprises a single field of intensively managed arable land, with two hedgerows and a ditch on the southern boundary, and two hedgerows on the north-east boundaries. One individual tree was present on the northern boundary of the Site.
- 2.4 The landscape beyond the Site to the east, south and west was predominantly rural, consisting of arable and pasture, with a small area of woodland/scrub immediately to the west. Residential areas associated with Barlestone are located immediately north and north-east, and the A447 is approximately 250m south-west of the Site.

Site Proposals

- 2.5 The proposals for the Site are for the erection of up to 158 dwellings (including affordable housing) with public open space, landscaping and sustainable drainage system (SuDS) and vehicular access point. All matters reserved except for means of access.
- 2.6 Public Open Space is to comprise species-rich neutral grassland, mixed scrub and tree planting, in addition to the retention of boundary habitats. Proposals also included public open space in the form of LEAP and LAP areas, and footpaths along the west, south and eastern boundaries.

3.0 LEGISLATION

Otter

3.1 The European otter *Lutra lutra* is fully protected under Schedule 5 of the Wildlife and Countryside Act (WCA) 1981 (as amended). This makes it an offence to:

- Intentionally or recklessly kill, injure or take otters
- Possess or control live or dead specimens or derivatives
- Intentionally or recklessly damage, destroy and obstruct access to any structure or place used by this species for shelter or protection
- Sell this species or offer or expose for sale or transport for sale
- Publish or cause to be published any advertisement which conveys the buying or selling of this species

3.2 Otters are also protected by the Conservation of Species and Habitats Regulations (CSHR) 2017 as amended. This makes it an offence to:

- Deliberately kill, take or injure an otter
- Deliberately damage or destroy an otter's place of shelter
- Deliberately disturb an otter whilst using such a place

Water Vole

3.3 The water vole *Arvicola amphibius* is fully protected under the WCA 1981 (as amended). This makes it an offence to:

- Intentionally kill, injure or take water voles
- Possess or control live or dead water voles or derivatives
- Intentionally or recklessly damage, destroy and obstruct access to any structure or place used by water voles for shelter or protection
- Intentionally or recklessly disturb water voles whilst they are using such a place
- Sell water voles or offer to expose for sale or transport for sale
- Publish or cause to publish any advertisement which conveys the buying or selling of water voles

3.4 Both otter and water vole are listed as a Species of Principal Importance under S41 of the NERC Act 2006.

4.0 METHODOLOGY

Desk Study

4.1 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:

- Leicestershire & Rutland Environmental Records Centre

4.2 This study identified existing records of riparian mammal species within a search radius around the Site of 1km from the last 20 years. In addition, the following resources were interrogated for additional information and context:

- Multi Agency Geographic Information for the Countryside (MAGIC) website;
- Colour 1:25,000 OS base maps;
- Aerial photographs from Google Earth.

4.3 Full details are provided in the above-mentioned Ecological Impact Assessment.

Field Surveys

Water Voles

4.4 Two separate presence/likely absence surveys were undertaken in accordance with The Water Vole Conservation Handbook (3rd ed, 2011)¹ and the Water Vole Mitigation Handbook (2016)² and involved the identification of evidence of water vole activity within 5m of the banks of the watercourse and suitable waterbodies/courses on/adjacent to Site. Where possible, the survey extended beyond the boundaries of the Site. These surveys were undertaken by experienced ecologists during suitable timings to account for fluctuations in water vole activity throughout the season. The first survey took place on 30th September 2025 with the second survey taking place on 23rd April 2026.

Habitat Assessment

4.5 An initial habitat assessment was made by an experienced surveyor to determine the suitability of habitats within the Site to support water voles. Habitat requirements were based on those detailed in para 3.3.2 of the Water Vole Mitigation Handbook and Water Vole Field Signs and Habitat Assessment³ and include:

- Dry areas above water level for nesting, either in burrows or above-ground woven nests;
- Steep bank profiles;
- Suitable bank substrate for burrowing;
- Daily water level fluctuations;
- Herbaceous marginal and bankside vegetation; and

¹ Strachan, R, Moorhouse, T, & Gelling, M. (2011). *Water Vole Conservation Handbook – Third Edition*. Oxford: WCRU, University of Oxford.

² Dean, M., Strachan, R., Gow, D & Andrews, (2016) *The Water Vole Mitigation Handbook*. The Mammal Society Guidance Series. Eds F. Matthews & P. Chanin. The Mammal Society, London.

³ Dean, M, (2021), *Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water vole Surveys*, Pelagic Publishing

- Suitable water depth.

4.6 The Water Vole Mitigation Handbook outlines that water voles have the following three habitat requirements:

- Dry areas above water level for nesting (either in burrows or occasionally in woven nest balls);
- Herbaceous vegetation to provide food and cover; and
- Water (as a means of escape from predators).

4.7 This criterion is rationalised in a recently published matrix⁴ which can be used to assess the potential value of habitat for water vole (Table 1).

Table 1: Assessing the value of habitat for Water voles (Deans, 2021 – Table 21).

Habitat category	Bank Profile	Bank substrate	Variation in water level	Herbaceous vegetation	Water
	Dry areas for burrows or nests				
Optimal (all criteria need to be met)	Steep (approaching 1:1) on at least one side of a watercourse. Steep or shallow banks on static waterbodies or fen-type habitat, where water levels do not fluctuate significantly	Earth or peat	No noticeable variation during the summer months; banks are not overtopped regularly ^a	Continuous swathe of tall and luxurious riparian vegetation providing 90-100% cover on the banks (tall tussocky grassland) and marginal/in-channel vegetation is present (emergent species)	Permanent water
Good (all criteria need to be met)	Steep (approaching 1:1) on at least one side of a watercourse. Steep or shallow banks on static waterbodies or fen-type habitat, where water levels do not fluctuate significantly	Earth or peat bank, or stony/reinforced bank with gaps allowing access to the earth behind	No noticeable variation during the summer months; banks are not overtopped regularly	Continuous swathe of bankside or in-channel (emergent) vegetation providing at least 60% ground cover. May be dominated by grasses and weeds, rather than luxurious riparian vegetation. The vegetation should generally be tall, except in urban or suburban areas, where shorted bankside vegetation may also qualify	Permanent water. Or routinely wet for at least 2-3 months during the summer, and where other 'good' habitat is present in immediately adjacent areas with permanent water
Suitable but poor ^b	Any habitat that falls short of the criteria to qualify as 'good' but does not meet the criteria of 'negligible value' could reasonably be considered to be suitable but 'poor'				

⁴ Dean M (2021) Water vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys. Pelagic Publishing

Habitat category	Bank Profile	Bank substrate	Variation in water level	Herbaceous vegetation	Water
	Dry areas for burrows or nests				
Negligible value (will generally need to meet the criteria for herbaceous vegetation and at least one other)	Shallow profile on both banks	Rocky or gravel, unsuitable for burrowing	Considerable variation in water level – the bank toe can move by more than 1m horizontally over the breeding season	No or limited bankside and marginal vegetation (due to shading or other 'permanent' factors – note that management can change and is often a 'temporary' factor)	n/a
	Vertical bank face with no burrowing opportunities behind it	Reinforced banks with no gaps	n/a		n/a

a. overtopping once every 5-10 years is likely to be too frequent in most cases; overtopping less frequently than this may also be problematic for water voles.

b. the term 'suitable but poor' is used to avoid the possible misinterpretation of this habitat category opposed to the term 'poor', which some would dismiss as 'unsuitable'.

Survey

4.8 A late season survey took place on 30th September 2025 with the early season survey completed on 23rd April 2026. Where possible the surveys were conducted by walking within the channel of the watercourse/body, otherwise it was surveyed by walking along the bank and inspecting with binoculars. Evidence of signs to confirm presence was searched for especially on exposed natural berms, tree roots, and accumulated debris. This included:

- Water voles – live sightings;
- Latrines – distinct piles of water vole droppings found near nest sites, at the ranges of territorial boundaries and where the animals enter and leave the water. The presence of droppings is the only field sign which can be used reliably on its own;
- Burrows – burrow entrances are typically wider than high with a diameter between 4 and 8cm. Generally, these burrow entrances are located at the water's edge;
- Feeding stations – areas with distinct neat piles of chewed lengths of vegetation along pathways or haul out platforms along the water's edge;
- Footprints – identifiable prints in soft margins of the watercourse;
- Runways – low tunnels that are pushed through the vegetation and often leading to burrows or feeding stations; and
- Nest balls – woven vegetation of approximately the size and shape of a rugby ball, usually found within a tuft of vegetation above the water line.

Otters

4.9 In order to determine presence/likely absence and status of otters which may be using the site, signs of otter activity were searched for following the methodologies detailed within the New Rivers and Wildlife Handbook⁵. Potential signs include:

⁵Royal Society for the Protection of Birds (RSPB), National Rivers Authority (NRA) and Royal Society for Nature Conservation (RSNC). (1994) The New Rivers and Wildlife Handbook. Eds. Ward D., Holmes N., Jose P. RSPB, Sandy, Bedfordshire

- Spraints – characteristic sweet-smelling, black tar-like (where fresh/relatively recent i.e. within a few weeks) or grey crumbly (when old) faecal deposits usually containing fish scales, bones and occasionally invertebrate exoskeleton and bird feathers;
- Footprints – In good substrate typically asymmetrical and showing five toes arched around a large pad and, depending on substrate, webbing and claw marks. Poorer, generally coarser substrates do not often enable the identification of otter footprints.

4.10 Additional signs of otter presence may occur, although without additional evidence these signs are usually inconclusive proof of current otter presence:

- Feeding remains – Remains of fish;
- Slides/haul-outs – Routes into and out of the water, which are usually associated with terrestrial routes such as short cuts around meanders or along traditionally, used otter paths/routes;
- Couches/hovers – above ground resting place. Usually associated with cover such as dense scrub, rushes or reed, flood debris or fallen trees. Many couches are rarely used whilst others more so. Difficult to prove use without radio or camera tracking;
- Holts – below ground resting site usually associated with sprainting. Sometimes used with greater frequency than couches and can be important for breeding (natal holts) where other signs are usually absent. Notoriously difficult to find or prove without radio or camera tracking.

Limitations

4.11 No significant constraints to the surveys were identified.

5.0 RESULTS

Desk Study

- 5.1 Five records of water vole were identified between 2006-2020. The closest records were burrows and feeding signs from 2011 and 2012, 400m to the east of the Site boundary.
- 5.2 Three records of otter were identified between 2015-2022. The closest records were from camera traps from 2019 and 2022, 300m east of the site.

Habitat Assessment

- 5.3 Table 2 provides a summary of the waterbodies identified during the 2025 survey with suitable features to support riparian mammals. Locations can be found on Figure 1.

Table 2: Waterbody Descriptions and Habitat Suitability for Riparian Mammals

Waterbody Ref	Brief Description	Habitat Value	Photograph
Ditch D1	A 315m long ditch was located adjacent to the southern Site boundary (offsite), running west to east with a sluggish flow. The ditch was between 0.5-1m wide and the banks were flat-to-shallow throughout, with minimal marginal vegetation and dominated by scrub and ivy <i>Hedra helix</i> and shaded throughout by bankside trees. Water depth varied being less than 0.5m on average but pools formed where the depth was >0.5m. Aquatic vegetation was present only at intervals and included species such as foals watercress <i>Helosciadium nodiflorum</i> and the channel substrate changed from gravel to silt/mud as it moved east. Use by dog walkers clear along the watercourse.	Suitable but poor (Due to low water levels and shading contributing to sparse marginal vegetation for forage).	

Field Signs

- 5.4 Figure 1 shows the locations of riparian mammal signs recorded during each of the survey occasions.

Water Vole

- 5.5 No evidence of water voles in the form of latrines or feeding stations was observed during the surveys. The banks were considered to be of a suitable substrate for burrow creation however were found to be shallow in gradient and flat in areas with little to no marginal vegetation.

Otter

- 5.6 No signs of otter holts or resting places were found along the watercourse, however suitable habitat for holt creation was identified along the banks (such as bankside trees and scrub) especially to the west. No other evidence of otters were noted during the surveys.

Other Species

- 5.7 During the surveys, signs of brown rat *Rattus norvegicus* were found at the channel edges along the survey area including droppings and footprints and a single American mink *Neovision vison* footprint was also recorded further reducing the likelihood of water voles being present in the area.

6.0 DISCUSSION

Water Vole

- 6.1 Five records of water vole were identified within 1km of the Site boundary dating between 2006 – 2020. The ditch to the south of the Site was considered to offer some limited water vole habitat however, this was restricted due to the shallow banks, limited vegetation and scrub cover.
- 6.2 Current layouts show that the ditch will be buffered amongst wide expanses of green space including grassland and attenuation basins, improving the habitats available for any water vole populations in the area.
- 6.3 Whilst habitats were considered to be of limited suitability for water vole, no evidence of the species was observed during the survey effort. A single American mink footprint was recorded during the late season survey. Mink are known predators of water vole, therefore further reducing the likelihood of water vole being present in the suboptimal watercourse.

Otter

- 6.4 Three records of otter from between 2015–2022 were identified within the wider landscape, the closest being approximately 300 east of the Site. The stretch of the watercourse adjacent to the Site provides limited habitat for foraging however, provides some commuting potential and holt creation habitat for otter.
- 6.5 No evidence of otter activity was identified and despite the watercourse providing suitable commuting habitat, no holts or resting places were observed.
- 6.6 Therefore, it is not considered there are any constraints on the proposals from this species. However, due to the presence of otters in the wider vicinity, precautionary mitigation measures are recommended to ensure legal compliance and prevent indirect impacts.

Mitigation

- 6.7 Prior to any construction activities near the watercourse, a pre-commencement survey should be undertaken. If the level of activity remains the same then the mitigation measures detailed below apply and should be adopted. Should activity have significantly increased, then the scope of mitigation may need to be reviewed.
- 6.8 Best practice mitigation for otters should include the following:
- Prior to works which are to take place within 50m of the watercourse all Site operatives should be given a 'toolbox talk' outlining the presence of otters, their duty of care and procedures if one is found on-site.
 - All retained aquatic habitats should be protected during construction and best practice followed to ensure the risk of any potential impacts from pollution events are minimised. Best practice should follow the recommendations of the now withdrawn environment agency's pollution prevention guidelines (ppg) such as PPG 5: works or maintenance in or near water and PPG 6: working at construction and demolition sites.
 - It is recommended that a construction environmental management plan (CEMP) is produced for the Site.

- Containers and other storage materials retained on-site will be covered overnight or fenced off to prevent otters entering. Where this is necessary for these to be left open over-night then shallow, sloping batters will be used to provide a means of escape.
- In the unlikely event any open pipe system is temporarily exposed, this should be capped in such a way as to prevent otters gaining access, as may happen when workers are off-site.
- Where possible night-time operations near the watercourse should be avoided to prevent disturbing otters during the time which they are most active.
- In the event any lighting is required it should be positioned as to minimise light-spill on to the watercourse. Further detail regarding good practice lighting is provided within the bat report (FPCR, 2026).

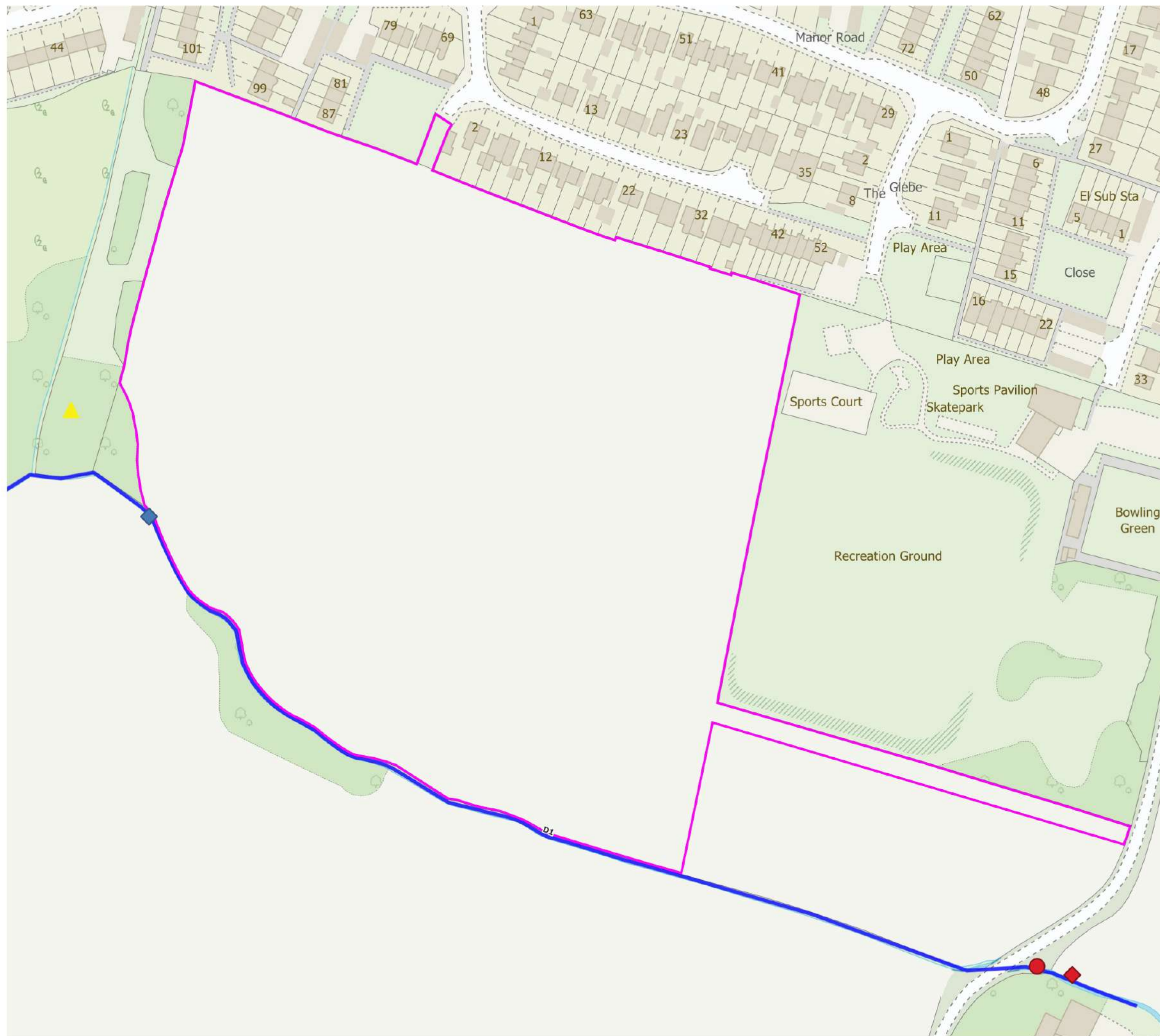
6.9 It is also recommended that wherever possible the layout of the development should retain existing tree and scrub cover along and near to the watercourse to maintain cover for otters.

Enhancements

6.10 The following outlines measures that may be considered to achieve benefits for otter as part of the developed Site. The following is recommended near to the watercourse:

- **Watercourse enhancement** – where possible the margins of wetland features within the Site should be sown with a seed mix that will encourage sufficient vegetative cover for otter. Marginal aquatic flora may also be included as part of these features.
- **Encourage use by otter** – The addition of log piles and scrub planting away from new pathways and high disturbance areas could be created to encourage shelter and rest areas for otters using the water channel.

6.11 With the above methodology and enhancements in place it is considered that, currently, there will be no impact on the use of the ditch by otter as a result of the proposals and that all relevant legislation will be complied with. Whilst water voles were not confirmed to be present on Site the above measures will also ensure no risk of harm to this species in the unlikely event they colonise the area and will provide enhanced habitat for this species in the long-term.



Study Area

September 2025 Survey Results

▲ Mink Footprint

● Rat Dropping

◆ Rat Footprints

April 2026 Survey Results

◆ Rat Footprints

drawn date
22/09/26

drawn/checked
LH / SP

client
Gladman Developments Ltd.

project
**Land off Cunneery Close,
Barlestone**

title
**RIPARIAN MAMMAL SURVEY
RESULTS PLAN**

scale
1:1,600 @ A3

number
FIGURE 1

rev
A

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